Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ASTRONOMICAL OBSERVATIONS IN 1909.

Made by Torvald Köhl, at Odder, Denmark.

Variable Stars.

(The instrument used is a 3-inch Steinheil, power 42.)

S *Ursæ Majoris.*[1]

Jan. 8: S = g.
24: id.
25: id.
Feb. 6: id.
12: > g. < f.
13: = f.
16: id.
19: id.
20: in the midst. between e and f.
21: id.
Mar. 1: < e. > f.
18: = e.
Apr. 1: = d.
15: 3 steps > d.
19: id.
21: 5 steps > d.
26: id.
May 6: 6 steps > d.
10: 4 steps > d.
20: id.
Aug. 6: = g.
8: 1 step > g.
14: id.
Aug. 16: = g.
23: id.
Sept. 5: id.
8: id.
11: id.
15: > g. < f.
16: id.
21: 3 steps > g.
Oct. 1: in the midst. between e and f^1.
6: 2 steps < e.
9: id.
10: 1 step < e.
27: 3 steps > d.
Nov. 10: 2 steps > d.
11: 2½ steps > d.
15: 2 steps > d.
17: id.
20: id.
24: 1 step > d.
Dec. 15: id.
21: 4 steps > d.
27: id.
30: 3 steps > d.

T *Ursæ Majoris.*[2]

Jan. 8: T invisible.
24: id.
25: id.
Feb. 6: id.
12: id.
13: id.
16: id.
Feb. 19: id.
20: id.
21: id.
Mar. 1: id.
18: id.
Apr. 1: id.
15: < g.

---

[1] Vide the sketch in the *Publications A. S. P.*, No. 73, **12**, 56.

[2] Vide the sketch in the *Publications A. S. P.*, No. 22, **4**, 63.

Apr. 19: id.
21: $\left\{\begin{array}{l} > \text{f.} \\ < \text{e.} \end{array}\right.$
26: 2 steps < d.
May 6: = c.
10: 1 step > c.
20: id.
Aug. 6: 1 step > f.
8: = f.
14: 1 step < g.
16: 1 step < f.
23: 2 steps < f.
Sept. 5: faint.
8: very faint.
11: id.
15: id.
Sept. 16: id.
21: invisible.
Oct. 1: id.
6: id.
9: id.
Nov. 10: id.
15: id.
17: id.
20: id.
24: id.
Dec. 7. id.
15: id.
21: id.
27: 1 step > e.
30: 1 step < d.

W *Pegasi.*[1]

Jan. 8: W = c.
Feb. 12: $\left\{\begin{array}{l} < \text{e.} \\ > \text{f.} \end{array}\right.$
13: id.
16: id.
19: = f.
21: id.
May 20: invisible.
21: id.
Aug. 8: = f.
14: id.
16: 1 step < f.
19: $\left\{\begin{array}{l} < \text{f.} \\ > \text{g.} \end{array}\right.$
23: id.
28: id.
Sept. 5: id.
8: $\left\{\begin{array}{l} > \text{f.} \\ < \text{e.} \end{array}\right.$
11: id.
14: = e.
Sept. 16: $\left\{\begin{array}{l} < \text{e.} \\ > \text{f.} \end{array}\right.$
21: = e.
Oct. 1: $\left\{\begin{array}{l} \text{in the midst} \\ \text{between c and d} \end{array}\right.$
6: = c.
9: 1 step > c.
10: 3 steps > c.
Nov. 10: 1 step > b.
11: 1 step < b.
15: id.
16: id.
17: id.
18: id.
20: id.
24: 3 steps < b.
Dec. 7: = c.
21: = d.
27: 1 step < d.
30: id.

SS *Cygni.*[2]

Jan. 8, 6^h: SS $\left\{\begin{array}{l} > \text{e.} \\ < \text{f.} \end{array}\right.$
23, 19^h: invisible.
Feb. 21, 7^h: = f.
Apr. 19, 10^h: = d.
26, 10^h: 1 step > c.
May 6, 11^h: $\left\{\begin{array}{l} < \text{e.} \\ > \text{f.} \end{array}\right.$

---

[1] Vide the sketch in the *Publications A. S. P.*, No. 60, **10**, 23.

[2] Vide the sketch in the *Publications A. S. P.*, No. 100, **17**, 18.

May 20, 12^{h}: = f.
Aug. 6, 10^{h}: 1 step < c.
7, 10^{h}: id.
8, 10^{h}: id.
9, 10^{h}: 1 step > d.
10, 10^{h}: 1 step < d.
14, 10^{h}: = e.
16, 10: id.
23, 12^{h}: 2 steps < f.
28, 9^{h}: 1 step < f.
Sept. 5, 9^{h}: = f.
8, 9^{h}: $\left\{\begin{array}{l} < \text{f.} \\ > \text{g.} \end{array}\right.$
11, 12^{h}: id.
Sept. 14, 8^{h}: = g.
16, 8^{h}: = f.
Oct. 6, 10^{h}: 1 step < f.
9, 9^{h}: = f.
Nov. 10, 9^{h}: = g.
15, 10^{h}: id.
17, 8^{h}: $\left\{\begin{array}{l} < \text{f.} \\ > \text{g.} \end{array}\right.$
18, 8^{h}: = f.
Dec. 15, 10^{h}: 2 steps > d.
16, 9^{h}: 2 steps < d.
21, 6^{h}: $\left\{\begin{array}{l} > \text{f.} \\ < \text{e.} \end{array}\right.$
27, 6^{h}: = g.

Z *Cygni.*[1]

Jan. 8: Z invisible.
24: id.
Feb. 21: id.
Apr. 19: id.
26: id.
May 6: id.
10: $\left\{\begin{array}{l} > \text{e.} \\ < \text{d.} \end{array}\right.$
21: $\left\{\begin{array}{l} > \text{d.} \\ < \text{c.} \end{array}\right.$
June 16: $\left\{\begin{array}{l} \text{2 steps} < \text{a.} \\ \text{4 steps} > \text{b.} \end{array}\right.$
Aug. 8: 1 step > c.
Aug. 14: $\left\{\begin{array}{l} < \text{c.} \\ > \text{d.} \end{array}\right.$
16: id.
Sept. 11: 2 steps < e.
Oct. 6: < e.
Nov. 11: 5 steps < e.
15: invisible.
18: id.
Dec. 15: id.
21: id.
27: id.
30: id.

U *Herculis.*

Jan. 24: $\left\{\begin{array}{l} < \text{g.} \\ > \text{h.} \end{array}\right.$
Apr. 26: invisible.
May 7: id.
10: id.
21: id.
Aug. 6: id.
14: 1 step < h.
16: $\left\{\begin{array}{l} \text{1 step} > \text{h.} \\ \text{2 steps} < \text{g.} \end{array}\right.$
23: a little > g.
28: $\left\{\begin{array}{l} \text{in the midst.} \\ \text{between f and g.} \end{array}\right.$
Sept. 5: 1 step < e.
8: = e.
Sept. 11: 1 step > e.
14: = d.
15: id.
16: $\left\{\begin{array}{l} > \text{d.} \\ < \text{c.} \end{array}\right.$
21: 2 steps < c.
Oct. 1: $\left\{\begin{array}{l} \text{in the midst.} \\ \text{between c and d.} \end{array}\right.$
6: $\left\{\begin{array}{l} > \text{d.} \\ < \text{c.} \end{array}\right.$
9: ½ step > d.
Nov. 10: 1 step > f.
16: = f.
18: 3 steps < f.
24: 2 steps < f.

---

[1] Vide the sketch in the *Publications A. S. P.*, No. 100, **17**, 16.

I have used the sketch in the *Publications A. S. P.*, No. 106, **18**, 52, but have added the two small neighboring stars g at a and h at f, both northward.

Y *Tauri* (B. D. + 20° 1083).

A number of twenty comparisons have been made upon this irregular variable star. While in the year 1908 Y was noted either equal to or brighter than the star A = B. D. + 20° 1095 ($7^m.4$), it was in the year 1909 after February 12th fainter than A.

TV *Cygni.*

This star (B. D. + 46° 2970), mentioned in the *Publications A. S. P.*, No. 77, **13**, 18, has in the past year undergone some slight variations, but any period has yet not been detected.

METEORS.

Fireballs have been observed from stations in Denmark at the following dates: January 8th, 10th, 13th, 20th; February 8th, 9th, 16th; April 5th, May 19th, June 10th, August 10th, 19th; September 14th, 20th, 27th; October 9th, 23d; November 8th, 10th, 14th, 17th, 21st; December 5th. My Meteor Catalog shows large fireballs on September 27th-28th in the years: 1870, 1876, 1877, 1880, 1887, 1890, 1892, 1893, 1900, and 1909. December 12th-13th is also designated as a meteor-day.

SHOOTING-STARS.

Shooting-stars were observed from nine stations in Denmark on August 9th, 10th, 11th, 12th, 19th, and September 14th. At these stations 217 paths of shooting-stars were mapped, but only ten proved suitable for calculation. These ten meteors have given the following results:—

From Observation.

No.	Time.	Station.	Beginning.	Ending.	Mag.	Observer.
1	Aug. 9, 11^h 3^m 0^s P.M.	Odder	35° + 78°	220° + 79°	1	T. Köhl.
		Copenhagen	196 + 56	203 + 40.5	♃	O. Asmussen.
2	Aug. 10, 9 35 0	Fredericia	42 + 54	33 + 50	> ♀	Ch. Frost.
		Aarhus	21 + 61	0 + 53	1	H. Aae.
3	Aug. 10, 10 16 10	Kolding	....	355 + 9	1	H. Nielsen.
		Odder	....	345 + 4	1	T. Köhl.
4	Aug. 10, 10 23 50	Odder	354 + 21	348 + 10	3	T. Köhl.
		Copenhagen	320 + 50	297 + 32	1	O. Asmussen.
		Sönderborg	....	18 + 28	2	Maria Wolff.
		Vallekilde	....	336 + 23	1	K. Kaestel.
5	Aug. 10, 10 47 40	Sönderborg	23 + 37.5	20 + 30	3	Maria Wolff.
		Odder	350 + 20	346 + 9	4	T. Köhl.
6	Aug. 10, 11 20 30	Sönderborg	....	65 + 43.5	2	Maria Wolff.
		Odder	....	27 + 36.5	1	T. Köhl.
7	Aug. 10, 11 23 30	Odder	355 + 11	350 ÷ 1	2	T. Köhl.
		Vallekilde	246 + 34	241 + 14	1	K. Kaestel.
8	Aug. 10, 11 36 0	Sönderborg	45 + 45.5	54 + 39	1	Maria Wolff.
		Odder	25 + 40	20 + 27	♃	T. Köhl.
9	Aug. 19, 9 25 48	Odder	320 + 25	329 ÷ 5	½ ☾	T. Köhl.
		Copenhagen	251 + 37	220 + 5	♀	S. A. Kierulff
10	Sep. 14, 8 58 0	Odder	330 + 0	350 ÷ 10	3	T. Köhl.
		Copenhagen	295 + 5	315 ÷ 10	1	K. Ochsner.

From Calculation.

No.	Beginning.			Ending.			Real Length of the Path.	Radiant.	
	h	λ	φ	h	λ	φ	β	AR	Decl.
1	132.8	1° 52′.4 w	56° 48′.4	114.8	2° 50′.5 w	56° 36′.6	67.0	37°	+ 24°
2	106.0	1 .9.7 w	56 56.4	77.5	1 19.4 w	56 30.2	57.3	77	+ 61
3				126.1	1 44.7 e	54 43.3			
4A	125.0	0 37.4 e	55 39.0	86.1	0 7.6 e	55 21.8	59.2	32	+ 57
B				86.1	0 7.6 e	55 22.0			
C				87.6	0 8.4 e	55 21.6			
5	112.9	0 11.3 w	55 30.1	86.1	0 21.1 w	55 16.0	39.1	63	+ 71
6				79.0	0 36.7 w	56 16.0			
7	31.5	1 39.8 w	55 43.7	21.2	1 46.9 w	55 39.7	15.7	36	+ 61
8	226.1	1 42.4 e	56 34.3	92.2	0 7.0 w	55 59.2	190.0	32	+ 52
9	124.9	1 5.6 w	55 26.4	28.4	1 25.4 w	55 26.8	97.0	54	+ 53
10	137.9	0 35.0 w	54 13.4	63.6	0 23.2 e	54 28.0	102.0	261	+ 26

h and *β* are expressed in kilometers; λ is longitude from Copenhagen; *φ* is north latitude; *h* is the altitude of the meteor above the Earth's surface. The combination of Odder-Copenhagen is marked A, Sönderborg-Odder B, and Odder-Vallekilde C.

The Carina Observatory at Odder was opened for visitors on every fine evening from 9 to 10 o'clock during August and September. In July the telescope was supplied with a very good clockwork from the mechanician, J. OLSEN, Copenhagen. The estimations of variable stars have often been controlled by my assistants, Mr. J. SKAKKE and Mr. C. MIKKELSEN.

PLANETARY PHENOMENA FOR MARCH AND APRIL, 1910.

By MALCOLM McNEILL.

PHASES OF THE MOON, PACIFIC TIME.

Last Quarter.	March 3,	$11^h 52^m$ P.M.	Last Quarter .	April 2,	$4^h 48^m$ P.M.
New Moon ..	" 11,	4 12 A.M.	New Moon ...	" 9,	1 25 P.M.
First Quarter.	" 17,	7 37 P.M.	First Quarter.	" 16,	6 4 A.M.
Full Moon ...	" 25,	12 21 P.M.	Full Moon ...	" 24,	5 23 A.M.

The Sun crosses the equator from south to north and spring begins March 21st, 4 A. M., Pacific time.

Mercury is a morning star on March 1st. It passed greatest west elongation on February 19th and aphelion on February 27th. On March 1st it rises a little more than an hour before sunrise and may be seen in the morning twilight if weather conditions are fine. This condition of affairs will last only a few days, however, as the apparent distance between planet and Sun is diminishing; and on April 5th the planet reaches superior conjunction with the Sun, becoming an evening star. By the middle of April the apparent distance will have increased to such an extent that the planet will remain above the horizon for an hour after sunset, and at the end of the month the interval will be only a few minutes less than two hours. This is much larger than it usually is at greatest elongation, being mainly due to the fact that the planet is 8° north of the Sun at the end of April. The angular distance between Sun and planet is not as great as it frequently is at time of greatest elongation. For instance, the greatest west elongation on February 19th was 26° 33′, and the present greatest east elongation, which will occur on May 2d, is only